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60 References to other national documents:

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54 TRUCK TRAILER ADAPTED FOR THE SHAPING OF SHEET METAL.

57 The present invention relates to a truck trailer characterized by the fact that it is extendible from a rolling position corresponding to its minimum length to a stretched position corresponding to its maximum length and by the fact that it supports a reel of metallic strip (1) and a profiler (10) below the reel (1) and a receiving table for the profiled sheets (20), which receiving table (20) comprises a means of moving the latter between a superposed position relative to the profiler (10) when the trailer is in the rolling position and a position situated below the profiler (10) when the trailer is in the stretched position.

TRUCK TRAILER ADAPTED FOR THE PROFILING OF SHEET METAL

The present invention relates to a truck trailer adapted for the profiling of sheet metal, in particular for the production of profiled sections for panels and metal roofing.

In the area of industrial and agricultural construction, one very often makes metal buildings and for that one uses many metal panels of every kind for the purpose of constructing walls as well as roofing.

These panels are hung onto a structure, which is also generally of metal, and are made by profiling sheet metal from a strip.

This profiling operation is done by specialized manufacturers that have factories equipped for shaping profiles continuously from strip and thereby transforming them to panel elements of different shapes and formats.

These panel elements are then either delivered in large quantities to industrial construction contractors when the latter require large quantities, or to resellers who take care of supplying contractors when the latter require only lesser quantities.

This arrangement of large scale production associated with resellers is particularly suitable when it is a matter of supplying substantial quantities and in the case of industrial buildings.

On the other hand, in the case of the construction of agricultural buildings of smaller size and in the case of repairing or enlarging such agricultural buildings, or more generally when the quantities to be delivered are less substantial, this arrangement does not allow for demand to be responded to in a satisfactory manner.

In fact, such an arrangement proves to be too cumbersome to afford sufficient responsiveness.

Because of this, certain manufacturers have invested in small profiling plants located close to these markets.

But it is shown that despite the fact that these plants are smaller and closer to the markets, they still do not respond to demand in a satisfactory manner, and they are not sufficiently profitable.

The subject of the present invention is a truck trailer adapted for the profiling of sheet metal, in particular for the production of profiled section for panels and metal roofing that allows for optimal response to demand.

The present invention relates more particularly to a truck trailer characterized by the fact that it is extendible from a rolling position corresponding to its minimum length to a stretched position corresponding to its maximum length, and also by the fact that it supports a reel of metal strip, a profiler below the reel and a receiving table for profiled metal sheets, which said receiving table comprises a means of moving the latter between a superposed position relative to the profiler when the trailer is in rolling position and a position situated below the profiler when the trailer is in stretched position.

Amongst other characteristics of the invention:

- the receiving table for the profiled metal sheets is mounted on rollers,
- the means of moving the receiving table for the profiled metal sheets between a superposed position relative to the profiler and a position situated below the profiler are made up of rollers, rolling and guiding tracks that cooperate with said rollers and a drive mechanism to move the table from one position to another,
- the rolling and guiding tracks comprise a sharply inclined section extending from a point situated near the extremity of the table on the side of the profiler toward a point situated near the extremity of the profiler on the side of the table and above the said profiler, and a section extending above the profiler on a longitudinal axis at least equal to the length of the receiving table for the profiled metal sheets,
- the rolling and guiding tracks extend under the profiler, the said profiler being mounted on a platform raised to a height permitting the passage from the receiving table of the profiled metal sheets under the latter,
- the drive mechanism is made up of an electric winch and a cable connecting the said winch to the receiving table for the profiled metal sheets,
- the electric winch is made up of a strip reel,

- the profiler is a dual profiler comprising a dual series of roll forming shafts, each series being situated on a different horizontal plane, the two planes being situated one above the other,

- the receiving table for the profiled metal sheets is fitted with two opposing longitudinal rows of retractable arms, each arm being activated by a jack permitting it to be brought from a horizontal position supporting the sheet metal at the exit of the profiler toward a retracted vertical position, as well as inversely,

- the truck trailer supports shears situated between the profiler and the receiving table,

- the truck trailer supports a reel of anti-condensation material situated between the strip reel and the profiler.

The characteristics and advantages shall be more apparent further to the description that will follow, which is given merely by way of example, with reference to the annexed drawings in which:

- Fig. 1 is a schematic view of an example of an embodiment of the truck trailer in accordance with the invention in rolling position,

- Fig. 2 is a schematic view of an example of an embodiment of the trailer in accordance with the invention in stretched position,

- Fig. 3 is a schematic view of a variation of an embodiment of the truck trailer in accordance with the invention,

- Fig. 4 is a schematic view of a variation of an embodiment of the truck trailer in accordance with the invention in stretched position.

The truck trailer in accordance with the invention is a trailer that is extendible from a rolling position corresponding to its minimal length to a stretched position corresponding to its maximum length.

The construction of the structure of the trailer is of a known type, meaning that it is made up of side frames that fit together so as to permit their extension when the said trailer is in stationary position.

The trailer made in accordance with the invention supports a metal strip reel 1, a profiler 10 below the reel 1 and a receiving table for profiled sheets 20, which said table comprises a means of moving the latter between a superposed position relative to the profiler when the trailer is in rolling position, as shown in Figs. 1 and 3, and a position situated below

the profiler when the trailer is in stretched position, as shown in Figs. 2 and 4.

As may be seen in the figures, the receiving table for the profiled sheets 20 is mounted on rollers 21.

By way of an example that is not shown, the table 20 is fitted with two longitudinal rows of retractable arms, arranged opposite one another such that the retractable arms face each other.

Each retractable arm is activated by a by a jack permitting it to be brought from a horizontal position supporting the profiled sheet metal in a vertical retracted position oriented downward allowing for the profiled sheets to fall to the ground or onto a reprocessing surface.

The means of moving the receiving table for the profiled metal sheets 20 between a superposed position relative to the profiler 10 and a position below the said profiler are made up of rollers 21, rolling and guiding tracks 22 that cooperate with said rollers 21 and a drive mechanism 23 to move the table from one position to another.

In the example of the embodiment shown in figures 1 and 2, the rolling and guiding tracks 22 comprise a sharply inclined section 22a extending from a point A situated near the extremity of the table 20 on the side of the profiler 10, when the latter is situated below the said profiler, toward a point B situated near the extremity of the profiler on the side of the table and above the said profiler, and a section 22b extending above the profiler 10 on a longitudinal axis at least equal to the length of the receiving table for the profiled metal sheets 20.

These rolling and guiding tracks 22 associated with the rollers 21with which the table structure 2 is fitted allow the said table 20 to be pulled to place it above the profiler 10.

This operation is carried out by means of a drive mechanism 23, for example by means of an electric winch and a cable connecting the said winch to the said table.

By way of example, the reel 1 may make use of the electric winch to pull the table 20 above the profiler 10.

In this example of an embodiment, the rolling and guiding tracks 22 may either be fitted with legs so as to attach them to

the trailer floor, or be attached directly to the vertical risers of the trailer.

In the example of the embodiment shown in figures 3 and 4, the rolling and guiding tracks 22 extend beneath the profiler 10, the said profiler being mounted on a raised platform 30 to a height permitting the passage from the receiving table of the profiled metal sheets 20 under the latter.

This raised platform may be mounted on legs (as shown) or attached to the frame of the trailer.

In this example of an embodiment, the rolling and guiding tracks 22 associated with the rollers 21 with which the table structure 2 (sic) is fitted allow the said table 20 to be pulled to place it above the profiler 10.

This operation is carried out by means of a drive mechanism 23, for example by means of an electric winch and a cable connecting the said winch to the said table.

In this example of an embodiment, the rolling tracks 22 are attached directly to the floor of the trailer.

In the configuration of this example of an embodiment, the receiving table for profiled metal sheets 20 is a table that can move vertically so as to adjust to the level of the plane of the profiler.

As one sees on the figures, the profiler 10 is a dual profiler comprising a dual series of roll forming shafts 10a and 10b, each series being situated on a different horizontal plane, the two planes being situated one above the other.

The significance of this dual series profiler of shaft 10a, 10b is that it provides the benefit of having two distinct profiling lines on the same profiler.

Between the profiler 10 and the receiving table for profiled metal sheets 20 when the latter is situated below the profiler, the trailer in accordance with the invention is equipped with shears 40 allowing the cutting of metal sheets lengthwise.

The trailer is additionally fitted with a generating set that allows for the supply of the electric current necessary for the functioning of the reel 1, the profiler 10 and the drive mechanism 23.

By way of variation, it is possible to place a reel of anti-condensation material (not shown) between the strip reel 1 and the profiler 10.

This reel of anti-condensation material allows the application on the strip of an anti-condensation material of a known type, for example self-sticking, and thus to profile the metal sheet and obtain a profile of which one side is fitted with anti-condensation material.

When the trailer is in rolling position corresponding to its minimum length, as shown in figures 1 and 3, the receiving table for the profiled metal sheets 20 is in a superposed position relative to the profiler 10.

This position allows the truck pulling the trailer to move on roadways and thereby bring the production implement of which the said trailer is equipped as close as possible to the customers, for example to fairs and markets.

On site, an operator, for example the truck driver, maneuvers the trailer to bring it to a stretched position corresponding to its maximum length.

He then moves the receiving table 20 to bring it from its superposed position relative to the profiler 10 toward its position situated below the said profiler 10.

This operation is carried out either manually or by means of an electric winch 23.

The retractable arms of the receiving table 20 are brought to a horizontal position to support the metal sheets at the exit of the profiler.

The truck is thus in so-called working position.

To profile a metal sheet, it is sufficient to introduce the extremity of the strip to the first shaft of the profiler and to activate the strip reel 1 as well as the profiler.

The strip is then profiled according to the desired profile and at the exit of the profiler the profile is received by the retractable arms of the receiving table 20.

The operator conducts the shearing of the profile so obtained and may thus profile a second sheet and so on.

When the needed quantity of profiled metal sheets is made, the operator activates the control for the retractable arms that retract, thereby allowing the profiled metal sheets to fall onto the receiving surface, for example the forks of a forklift.

When the work is finished, the operator moves the receiving table 20 from its position situated below the profiler to its superposed position relative to

the said profiler by means of a drive mechanism 23, a cable hooked on the one hand to the said receiving table and on the other hand to the reel 1 acting as an electric winch in the examples of the embodiment shown.

He then maneuvers the trailer to bring it into rolling position.

To facilitate this work, in particular to facilitate the sliding of the floor of the rear section of the trailer on which rests the receiving table 20 when the latter is situated below the profiler 20, under the front section of the trailer supporting the profiler, the trailer made in accordance with the invention may be fitted with a device that provides for the slight raising of the floor supporting the profiler.

This device, for example jacks, is quasi-indispensable given the substantial weight of the profiler that it is advisable to relieve so as to slide the floor of the rear section of the trailer and thereby bring the latter into rolling position.

The advantages of the truck trailer made in accordance with the invention are numerous:

- it allows for the production implement to be brought very close to the customers;
- it is optimally adapted to the profiling of sheet metal for the construction and repair of small agricultural buildings;
- the use of a dual profiler allows the making of many profiling formats on the same implement;
- by virtue of the movable table for the receiving of profiled metal sheets, it allows for the carrying out of impeccable work;
- it is optimally adapted to the making of very small production runs and to made to order working of sheet metal.

CLAIMS

1 – Truck trailer, characterized by the fact that it is extendible from a rolling position corresponding to its minimum length to a stretched position corresponding to its maximum length and by the fact that it supports a reel of metallic strip (1) and a profiler (10) below the reel (1) and a receiving table for the profiled sheets (20), which receiving table (20) comprises a means of moving the latter between a superposed position relative to the profiler (10) when the trailer is in rolling position and a position situated below the profiler (10) when the trailer is in stretched position.

2 – Truck trailer in accordance with claim 1, characterized by the fact that it has a receiving table for profiled metal sheets (20) mounted on rollers (21).

3 – Truck trailer in accordance with claims 1 and 2, characterized by the fact that the means of moving the receiving table for the profiled metal sheets (20) between a superposed position relative to the profiler (10) and a position situated below the profiler (10) consist of rollers (21), rolling and guiding tracks (22) that cooperate with said rollers (21) and a drive mechanism (23) [to move] the table from one position to the other.

4 – Truck trailer in accordance with claim 3, characterized by the fact that the rolling and guiding tracks (22) comprise a sharply inclined section (22a) extending from a point A near the extremity of the table (20) on the side of the profiler (10) towards a point B situated near the extremity of the profiler (10) on the side of the table (20) and above the said profiler (20) and a section (22b) extending above the profiler (10) along a length at least equal to the length of the receiving table for the profiled metal sheets (20).

5 – Truck trailer in accordance with claim 3, characterized by the fact that the rolling and guiding tracks (22) extend under the profiler (10), the said profiler (10) being mounted on a raised platform (30) to a height allowing for the passage of the receiving table for profiled metal sheets under it.

6 – Truck trailer in accordance with claim 3, characterized by the fact that the drive mechanism (23) consists of an electric winch and a cable connecting the said winch to the receiving table for the profiled metal sheets (20).

7 – Truck trailer in accordance with claim 6, characterized by the fact that the electric winch consists of a strip reel (1).

8 – Truck trailer in accordance with claim 1, characterized by the fact that the profiler (10) is a dual profiler comprising a series of roll forming shafts (10a, 10b), each series being situated on a different horizontal plane, the two planes being situated one above the other.

9 – Truck trailer in accordance with claim 1, characterized by the fact that the receiving table for profiled metal sheets (20) is fitted with two opposing longitudinal rows of retractable arms, each arm being activated by a jack allowing it to be brought from a horizontal position supporting the sheet metal at the exit of the profiler towards a vertical retracted position, and inversely.

10 – Truck trailer in accordance with claim 1, characterized by the fact that it supports a set of shears (40) situated between the profiler (10) and the receiving table (20).

11 – Truck trailer in accordance with one of the preceding claims, characterized by the fact that it supports a reel of anti-condensation material situated between the strip reel (1) and the profiler (10).

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PRELIMINARY SEARCH REPORT

Established on the basis of the last claims filed prior the commencement of the search.

National registration no.

FA 510575
FR 9501240

DOCUMENTS CONSIDERED TO BE RELEVANT		Concerned sections of the examined application
Category	Citation of the document indicating the relevant sections as needed	
A	US-A-3 128 818 (BOTTOM) column 1, line 68 – column 2, line 45; figure 1 *	1
A	GB-A-929 751 (FERRERUELA) * page 1, line 9 – line 45; figures 1A, 1C *	1
A	WO-A-87 01977 (GOMERA) page 8, line 4 – line 13; claim 13; figures 4,6 *	1,10
A	US-A-2 235 727 (PEARLMAN) * column 2, line 20 – line 35; figure 1	1,2

TECHNICAL FIELDS SEARCHED (Int. Cl. 6)

B60P
B21D

Date of completion of the search	Examiner
October 23, 1995	Nordlund, J

CATEGORY OF DOCUMENTS CITED

X:
Y:
A:
O:
T:
E:
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L:

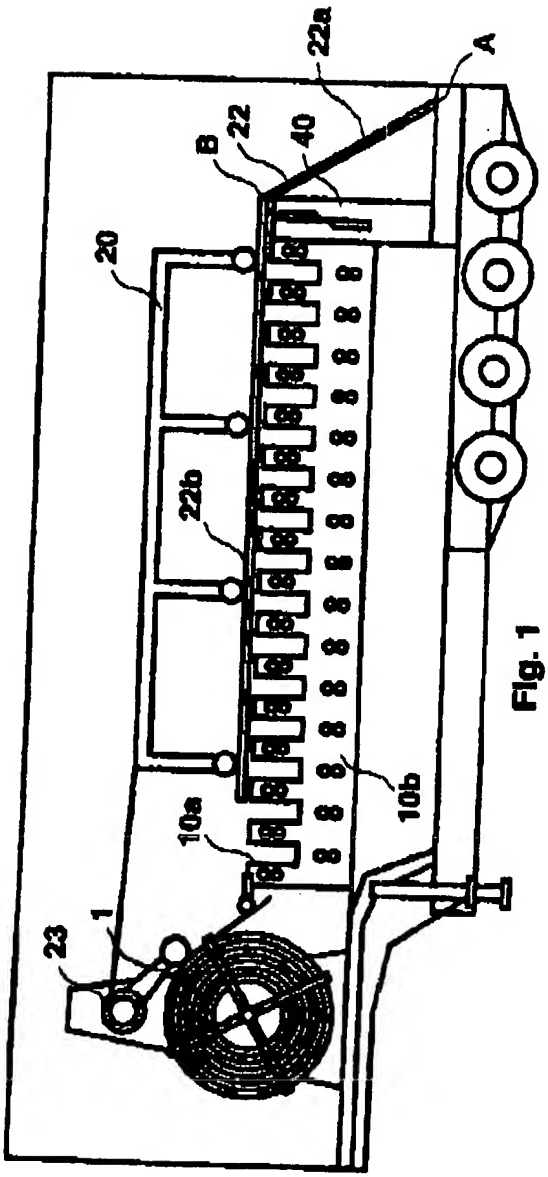

Fig. 1

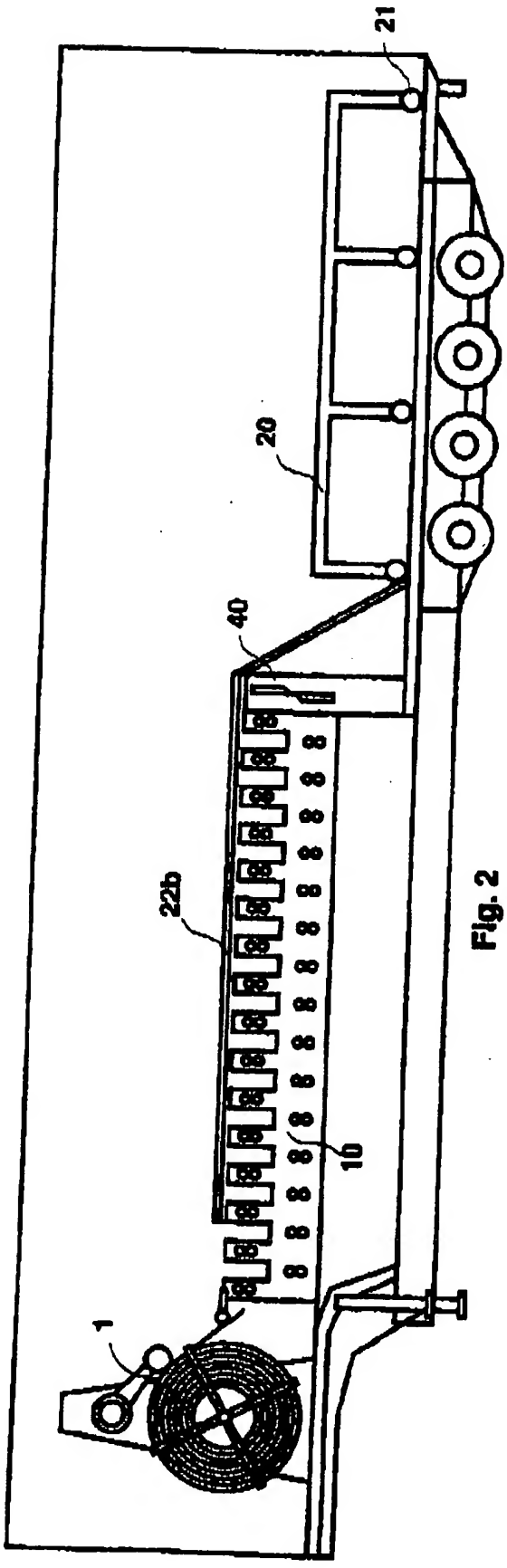

Fig. 2

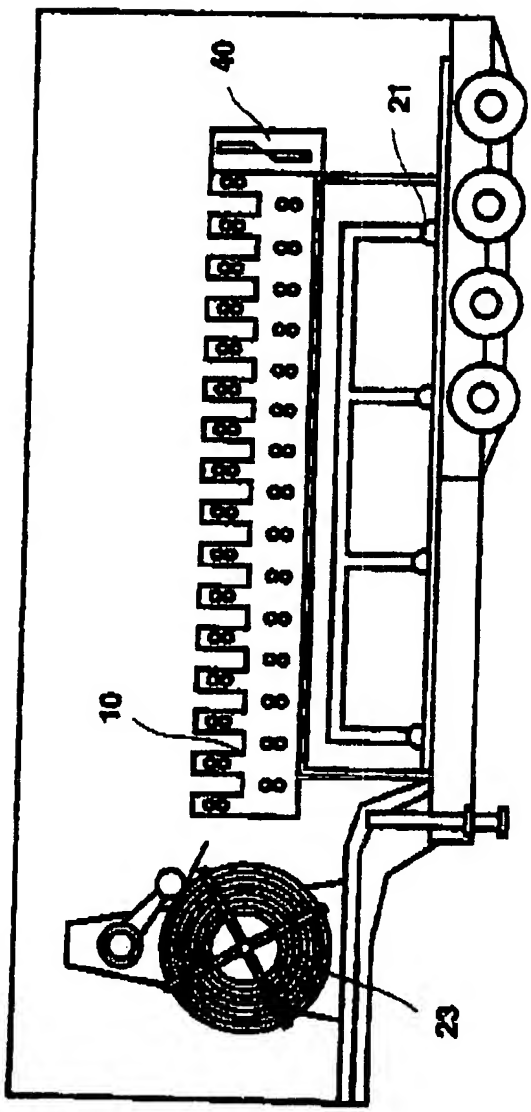

Fig. 3

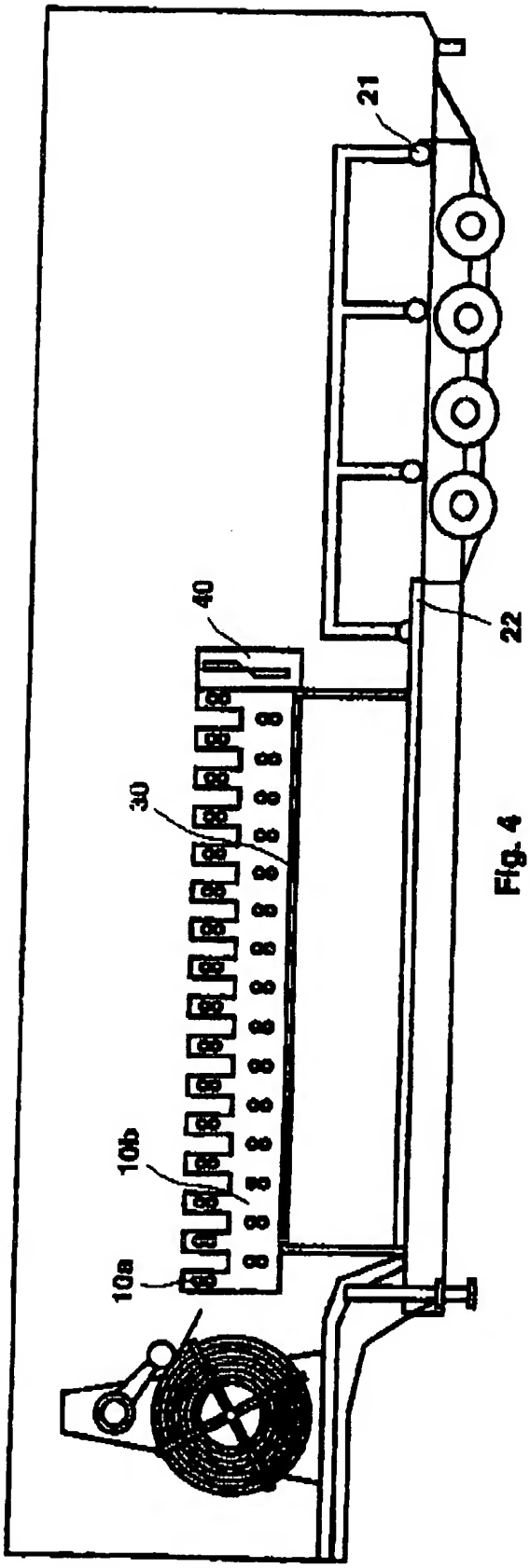

Fig. 4

SOLEMN DECLARATION

I, Svenja Skaalum, translator, residing and domiciled at 304 Grosvenor, Westmount, Québec, Canada, being fluent in the French and English languages, solemnly declare that the attached English language document is a true and accurate translation of the French language original of French Republic patent registration number 95 01240 (Olivier LORSERY).

AND I HAVE SIGNED,

S. Skaalum

Svenja Skaalum

SOLEMNLY DECLARED BEFORE ME AT
ST. LAURENT (DISTRICT OF MONTREAL)
QUÉBEC, CANADA THIS 7th DAY OF DECEMBER 1999

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